

CANDIDATE AND LISTING PRIORITY ASSIGNMENT FORM

SCIENTIFIC NAME: Calochortus persistens

COMMON NAME: Siskiyou mariposa lily

LEAD REGION: Region 1

INFORMATION CURRENT AS OF: February 2002

STATUS/ACTION (Check all that apply):

☒ New candidate

☐ Continuing candidate

☐ Non-petitioned

☒ Petitioned - Date petition received: 9-10-01

☐ 90-day positive - FR date: _____

☐ 12-month warranted but precluded - FR date: _____

_____ Is the petition requesting a reclassification of a listed species?

☐ Listing priority change

Former LP: _____

New LP: _____

Latest Date species first became a Candidate: _____

_____ Candidate removal: Former LP: _____ (Check only one reason)

☐ A - Taxon more abundant or widespread than previously believed or not subject to a degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status.

☐ F - Range is no longer a U.S. territory.

☐ M - Taxon mistakenly included in past notice of review.

☐ N - Taxon may not meet the Act's definition of "species."

☐ X - Taxon believed to be extinct.

ANIMAL/PLANT GROUP AND FAMILY: Flowering Plant/Family: Liliaceae

HISTORICAL STATES/TERRITORIES/COUNTRIES OF OCCURRENCE: California and Oregon

CURRENT STATES/ COUNTIES (optional)/TERRITORIES/COUNTRIES OF OCCURRENCE: Siskiyou County, California

LEAD REGION CONTACT (Name, phone number): Diane Elam (CNO) 916-414-6464; Wendi Weber (RO) 503-231-6131

LEAD FIELD OFFICE CONTACT (Office, name, phone number): Yreka Fish and Wildlife Office, Nadine R. Kanim (530) 842-5763

BIOLOGICAL INFORMATION (Describe habitat, historic vs. current range, historic vs. current population estimates (# populations, #individuals/population), etc.):

Calochortus persistens, the Siskiyou mariposa lily, is a narrow endemic that is restricted to two disjunct ridge tops in the Klamath-Siskiyou Range, on the California-Oregon border. Two historical populations are known: the type locality on Gunsight-Humbug Ridge, west of Yreka, Siskiyou County, California and the Bald Mountain site, west of Ashland, Jackson County, Oregon. In California, this species is currently found at nine separate sites on approximately 10 hectares (ha) (24 acres (ac)) of Klamath National Forest and privately-owned lands that stretch for 6 kilometers (4 miles) along the Gunsight-Humbug Ridge. The Oregon population was described in 1998, as five plants in an area of a few square feet (Klamath-Siskiyou Wildlands Center 2001).

In California, C. persistens occurs at elevations of 1,311 meters (m) (4,300 feet (ft)) to 1,847 m (6,060 ft) on ridgeline rock outcrops and talus, where the soils are shallow, dry, rocky, and acidic (Klamath-Siskiyou Wildlands Center 2001; Knorr 1987). These soils are well-drained early in the season after snow melt. Calochortus persistens plants are found in greater numbers on north-facing slopes and are not found very far down off the ridge (Knorr 1987). Soils on Gunsight-Humbug ridge are of metamorphic origin and belong to the Jayar Family/Woodseye Family Association (Klamath-Siskiyou Wildlands Center 2001; Knorr 1987). In Oregon, C. persistens is found at 1,585 m (5,200 ft) in McMullin Rock Outcrop Complex soils.

Calochortus persistens plants occur in openings where there is little vegetative cover and litter layer is shallow or absent. Dominant shrubs are Cercocarpus ledifolius, curl-leaf mountain mahogany, and Cercocarpus betuloides. Berberis aquifolium var. repens (Oregon-grape), is another associate that can sometimes be dominant. Other common shrub species in the vegetative community are: Lupinus albifrons var. collinus; Quercus garryana var. breweri; Prunus emarginata (bitter cherry); Chrysothamnus nauseosus (rubber rabbitbrush); Ceanothus integerrimus (deer brush); and Garrya sp. (silk tassel bush) (Knapp 1996; Knorr 1987). Downslope from this open shrubby vegetative community where C. persistens occurs, is mixed coniferous forest, dominated by Pinus ponderosa (ponderosa pine); Pseudotsuga menziesii (Douglas-fir); and Calocedrus decurrens (incense cedar).

A 1982 census resulted in a California population estimate of 3,455 plants in nine separate occurrences. In 1987, 1,140 plants were counted in eight separate locations. In June 1995, all known California locations were surveyed resulting in an estimate of 3,000 plants. No plants have been seen at the Oregon site for the past 2 years (Klamath-Siskiyou Wildlands Center 2001).

THREATS (Describe threats in terms of the five factors in section 4 of the ESA providing specific, substantive information. **If this is a removal of a species from candidate status or a change in listing priority, explain reasons for change**):

A. The present or threatened destruction, modification, or curtailment of its habitat or range.

Major threats include fire suppression resulting in shading; competition by native and non-native species; increased fuel loading; fragmentation by roads, fire breaks, tree plantations, and radio-tower facilities; maintenance and construction around radio towers and telephone relay station located on Gunsight Peak and Mahogany Point; and soil disturbance and exotic weed and grass species introduction as a result of heavy recreational use (Klamath-Siskiyou Wildlands Center 2001; Knapp 1995, 1996; Knorr 1987). *Isatis tinctoria* (dyer's woad), a germination inhibitor (Young and Evans 1971), is now found throughout the California population (Klamath-Siskiyou Wildlands Center 2001). U.S. Forest Service (Forest Service) staff report that dyer's woad affects 90 percent of the known C. persistens habitat in California (Klamath National Forest 2001). A biennial with a deep taproot, dyer's woad forms dense rosettes in infested areas, which is thought to prevent C. persistens seedling establishment, and also results in competition for space, water, and nutrients. Both Forest Service staff (Klamath National Forest, *in litt.*, 2001) and Klamath-Siskiyou Wildlands Center (2001) cite competition with dyer's woad as a significant and chronic threat to the survival of C. persistens.

The Gunsight-Humbug Ridge has one of the highest rates of lightning strikes and small fire ignitions on the Klamath National Forest (Knapp 1996). The last large fire in the area was the 1955 Haystack Fire. Fire suppression has resulted in shading and competition by native species including curl-leaf mountain mahogany and Oregon grape (Knapp 1995). Conifers appear to be encroaching as well (Knapp 1996). In addition to reducing habitat suitability through shading and competition, fire suppression may have resulted in an increased fuel load that could result in complete destruction of habitat, should a high-intensity fire occur.

Direct destruction of plants and habitat has occurred as a result of site maintenance around the Gunsight Peak radio installation in Spring 2000 (Klamath-Siskiyou Wildlands Center 2001) and snow plowing to replace a power pole in the winter of 1999/2000 (Klamath National Forest 2001). Road grading and controlled burning may also result in direct destruction of habitat (Klamath National Forest 2001; Klamath-Siskiyou Wildlands Center 2001).

As of December 2001, no private property development proposals in the area of the nine C. persistens occurrences were on file with the Siskiyou County Planning Department. However, one private property owner has indicated an interest in erection of cell towers on potential C. persistens habitat (Service, *in litt.*, 2001). None of the private property owners contacted have immediate plans for development in the area.

B. Overutilization for commercial, recreational, scientific, or educational purposes.

Knapp (1995) lists bulb collection as a threat to this species. In 1979 and 1982, the Klamath National Forest reported that there was some evidence that C. persistens bulbs may have been removed on Federal lands (Knorr 1987). At present, horticultural theft is not known to be a significant threat to the California population (Julie Knorr, Forest Service, pers. comm., 2002).

C. Disease or predation.

Deer, rodent, and insect herbivory is common and causes significant losses to leaves, buds, flowers, and fruits (Klamath-Siskiyou Wildlands Center 2001; Knapp 1996; Knorr 1987). In a 1995 to 2000, demographic study, no seeds matured in 4 out of 6 years, due in large part to

predation on reproductive structures (Klamath-Siskiyou Wildlands Center 2001).

D. The inadequacy of existing regulatory mechanisms.

Calochortus persistens was listed in July 1982 by the State of California Fish and Game Commission as a rare species under the California Native Plant Protection Act (CNPPA) (Chapter 10, section 1901 et seq., California Fish and Game Code, and Title 14 of the California Code of Regulations 670.2). The CNPPA prohibits the taking, possessing, or selling of plants listed under this act, though there are exceptions to these prohibitions. In the past, the CNPPA has not provided adequate protection for plants listed under this statute from the impacts of habitat modification, land use changes, or invasion of habitat by exotic species.

The Klamath National Forest has issued “Botanical Investigation and management Guidelines for Calochortus persistens” (Knorr 1987), and has designated 40 ha (100 ac) as Special Habitat for C. persistens (Klamath National Forest 1994). While the management goals set forth in the Klamath National Forest Land and Resource Management Plan must be implemented, currently there are no funds directly allocated to specific projects to reduce or eliminate dyer’s woad (Sue Stresser, Forest Service, pers. comm., 2002). In their petition to list this species, Klamath-Siskiyou Wildlands Center (2001) cites the fact that the management guidelines have not been implemented as one of the threats to the survival of the species. Existing regulatory mechanisms have not protected C. persistens from existing threats and are inadequate to ensure this species’ survival and recovery.

E. Other natural or manmade factors affecting its continued existence.

Unpublished data show that there has been no successful reproduction of C. persistens in the last 5 years (Klamath-Siskiyou Wildlands Center 2001). The reproductive rate based on conditions from 1995 to 1996 was high compared to those averaged over the period from 1995 to 2001 (Knapp undated). However, even during the period from 1995 to 1996, when the reproductive rate appeared to be relatively high, only 20 percent of buds produced in transects matured to distribute seeds (Knapp 1996). There is no evidence of asexual reproduction by bulbils or bulblets and plants do not begin to flower until 8 to 10 years of age (Klamath-Siskiyou Wildlands Center 2001).

The combination of restricted range, loss of one of two disjunct populations, poor competitive ability, short seed dispersal distance, slow growth rates, extremely low or absent seed production, and competition from exotic plants threaten the continued existence of this species.

BRIEF SUMMARY OF REASONS FOR REMOVAL OR LISTING PRIORITY CHANGE:

FOR RECYCLED PETITIONS:

- a. Is listing still warranted? ____
- b. To date, has publication of a proposal to list been precluded by other higher priority listing actions? ____
- c. Is a proposal to list the species as threatened or endangered in preparation? ____
- d. If the answer to c. above is no, provide an explanation of why the action is still precluded.

LAND OWNERSHIP (Estimate proportion Federal/state/local government/private, identify non-private owners): Of the nine known occurrences in California, seven are entirely located on the Scott River/Oak Knoll District of the Klamath National Forest (Forest). Two other occurrences are located on both, Forest and private lands (Klamath National Forest 2001). The Oregon population occurred entirely within the Ashland Resource Area, Medford District of the Bureau of Land Management (Klamath-Siskiyou Wildlands Center 2001).

PRELISTING (Describe status of conservation agreements or other conservation activities): In 1982, Klamath National Forest issued its "Botanical Investigation and Management Guidelines for Calochortus persistens (Knorr 1987). These guidelines prohibit new ground-disturbing activities within 100 m (330 ft) of Gunsight-Humbug Ridge, restrict vehicles to existing roads, prohibit the use of heavy equipment to maintain fuel breaks, prohibit implementation of activities before a Forest botanist is consulted, require installation of a deer-proof fence around a 0.8 ha (2 ac) area, and require monitoring of C. persistens populations. The Klamath National Forest Land and Resource Management Plan established a 40 ha (100 ac) Special Habitat Management Area for this species where it is currently known, and newly discovered C. persistens habitat must be managed to maintain a viable population and non-native species must be reduced or eliminated. The Klamath National Forest has conducted population surveys and funded a 1-year demographic study on this species. In 1990, Forest Service staff attempted a small dyer's woad removal project. Results of this test showed that hand removal is too time consuming and effort-intensive to be a viable eradication option (J. Knorr, pers. comm., 2002).

REFERENCES (Identify primary sources of information (e.g., status reports, petitions, journal publications, unpublished data from species experts) using formal citation format):

- Klamath National Forest. 2001. Letter to Mr. Phil Detrich, U.S. Fish and Wildlife Service, Yreka, California. 2 pp. + attachments.
- Klamath-Siskiyou Wildlands Center, Oregon Natural Resources Council, and B. Knapp. 2001. Formal petition to list the Siskiyou mariposa lily endangered under the Endangered Species Act. Ashland, Oregon. 20 pp. + appendices.
- Knapp, B. 1995. Demographic monitoring of Calochortus persistens and Calochortus greenei: a proposal to the U.S.F.S. Klamath National Forest. Unpublished manuscript. 11 pp.
- Knapp, B. 1996. Demographic monitoring of Calochortus persistens: report to the U.S.F.S. Klamath National Forest on work completed by November 30, 1995. Unpublished manuscript. 14 pp + appendices.
- Knapp, B. (Undated). Demographic monitoring of Calochortus persistens: report to the U.S.F.S. Klamath National Forest on work completed in 1996. Unpublished manuscript. 9 pp + appendices.
- Knorr, J. 1987. Calochortus persistens habitat inventory and status investigation. Klamath

National Forest, July 27, 1987, unpublished manuscript. 5 pp + appendices.

U.S. Department of Agriculture, Forest Service. 1994. Klamath National Forest Land and Resource Management Plan.

U.S. Fish and Wildlife Service 2001. Memorandum to John Nuss, Endangered Species Listing Branch, Portland, Oregon, 2 pp + attachment.

Young, J. and R. Evans. 1971. Germination of dyers woad. Weed Science 19:76-78.

Personal Communication:

Knorr, Julie. 2002. Klamath National Forest, Scott River/Oak Knoll Ranger District, Fort Jones, California

Stresser, Sue. 2002. Klamath National Forest, Yreka, California

LISTING PRIORITY (place * after number)

THREAT			
Magnitude	Immediacy	Taxonomy	Priority
<u>High</u>	<u>Imminent</u>	Monotypic genus <u>Species</u>	1 <u>2*</u>
	Non-imminent	Subspecies/population	3
		Monotypic genus	4
		Species	5
		Subspecies/population	6
Moderate to Low	Imminent	Monotypic genus	7
	Non-imminent	Species	8
		Subspecies/population	9
		Monotypic genus	10
		Species	11
		Subspecies/population	12

APPROVAL/CONCURRENCE: Lead Regions must obtain written concurrence from all other Regions within the range of the species before recommending changes to the candidate list, including listing priority changes; the Regional Director must approve all such recommendations. The Director must concur on all additions of species to the candidate list, removal of candidates, and listing priority changes.

Approve: Kenneth McDermond April 8, 2002
Acting Manager, Date
California/Nevada Operations
Fish and Wildlife Service

Concur: Steve Williams June 3, 2002
Director, Fish and Wildlife Service Date

Do not concur: _____
Director, Fish and Wildlife Service Date

Director's Remarks: _____

Date of annual review: 2/02
Conducted by: Nadine R. Kanim

Comments: _____

